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ALIX YALE & RISTAS LLP			LEO, LEONARD R	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



### DETAILED ACTION

The amendment filed on August 19, 2010 has been entered. Claims 17 and 21 are cancelled, and claims 11-16 and 18-20 are pending. Applicants are reminded claim 23 should be identified as cancelled.

### *Specification*

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. ***Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading.*** (emphasis added) If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Appropriate correction is required.

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo et al in view of Donaldson.

Kuo et al discloses a tube bundle heat exchanger comprising an inner 17 and an outer 2 jacket wall defining a channel with an axis; a tube bundle including a plurality of tubes 13 parallel to the axis; a ring 36 having a plurality of bores receiving outermost tubes and mounted to the inner jacket wall 17 and spaced from the outer jacket wall 2 to define a medium flow-through side; a disc 35 having a plurality of bores receiving innermost tubes and mounted to the outer jacket wall 2 and spaced from the inner jacket wall 17 to define a medium flow-through side; the ring 36 and disc 35 defining a zigzag pattern in the axial direction of the channel; but does not disclose a perimeter contour and web along the medium flow-through side of the ring and disc.

Donaldson discloses a tube bundle heat exchanger comprising an outer jacket wall 17 defining a channel having an axis; a tube bundle including a plurality of tubes 34, 35 parallel to the axis; and baffles 37 having a medium flow-through side spaced from the outer jacket wall with a perimeter contour and web (Figure 2) for the purpose of minimizing pressure drop in the shell side flow.

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Since Kuo et al and Donaldson are both from the same field of endeavor and/or analogous art, the purpose disclosed by Donaldson would have been recognized in the pertinent art of Kuo et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Kuo et al a baffle having a medium flow-through side with a perimeter contour and web for the purpose of minimizing pressure drop in the shell side flow as recognized by Donaldson.

Regarding claims 13 and 16, Figure 2 of Donaldson discloses the ring web of baffle 37 is substantially constant over the perimeter contour and is read as an “undulating shape.”

Regarding claims 14-15, the specific web width is considered to be an obvious design choice, producing no new and/or unexpected results and solving no stated problem. One of ordinary skill in the art would employ any web width to achieve a desired tube support strength.

Regarding claim 20, Donaldson discloses straight tubes 34, 35.

Claims 18-19 as best understood are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo et al in view of Donaldson as applied to claims 12-16 and 20 above, and further in view of Applicants’ Admitted Prior Art Figure 1 (APA).

The combined teachings of Kuo et al and Donaldson lacks a plurality of pairs of inner and outer jacket walls.

APA discloses a tube bundle heat exchanger comprising an inner 7 and an outer 8 jacket wall defining a channel with an axis 6; a tube bundle including a plurality of tubes 3 parallel to the axis; a ring 9 having a plurality of bores receiving the tubes and mounted to the outer jacket

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wall 8 and spaced from the outer jacket wall 7 to define a medium flow-through side; a disc 10 having a plurality of bores receiving the tubes and mounted to the inner jacket wall 7 and spaced from the outer jacket wall 8 to define a medium flow-through side; the ring 9 and disc 10 defining a zigzag pattern in the axial direction of the channel; wherein a plurality of inner and outer jacket walls define an inner 4 and outer channel 5 for the shell side fluid for the purpose of improving residence time and heat transfer.

Since Kuo et al and APA are both from the same field of endeavor and/or analogous art, the purpose disclosed by APA would have been recognized in the pertinent art of Kuo et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Kuo et al a plurality of inner and outer jacket walls for the purpose of improving residence time and heat transfer as recognized by APA.

Regarding claim 19, APA discloses the rings 9 and discs 10 are disposed in both channels.

### ***Response to Arguments***

The objection to the drawings under 37 CFR 1.83(a) is withdrawn in view of the cancellation of claim 21.

The objection to the specification is maintained. As emphasized in bold italics in the previous and instant Office actions, section headings are missing.

The rejection under 35 U.S.C. 112, first and second paragraphs are withdrawn in view of the amendment to claim 12. As amended, the structures of the disc and ring are consistent with the originally filed specification.

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Applicants' arguments have been fully considered but they are not persuasive.

In response to applicants' argument that there is no teaching, suggestion, or motivation to combine the references, the examiner recognizes that obviousness may be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves *or in the knowledge generally available to one of ordinary skill in the art*. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988), *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992), and *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007). In this case, the teaching as suggested by the Examiner is not explicitly found in the secondary reference of Donaldson. However, to employ a baffle having a medium flow-through side with a perimeter contour and web for the purpose of minimizing pressure drop in the shell side flow is knowledge generally available to one of ordinary skill in the art. Prior art baffles do not have peripheral contours, which result in a given cross sectional area available for the shell side fluid to flow. When a baffle as disclosed by Donaldson is employed, the peripheral contour reduces the material of the prior art baffle, which in turn, increases the cross sectional area available for the shell side fluid to flow versus the prior art baffle, thereby advantageously reducing the pressure drop of the shell side fluid flow.

Applicants' remarks are not commensurate in scope with the claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The combination of Kuo et al and Donaldson structurally meets the instant invention as claimed. Furthermore, "While features of an apparatus may be recited either structurally or functionally,

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claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function.” *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997)

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/ Leonard R. Leo /  
PRIMARY EXAMINER  
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August 30, 2010

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